List of Action Categories and Actions

Comments on Action Categories and Actions

Fax return by January 10, 1996 to (916) 654-9780
or mail to 1416 Ninth Street, Room 1155
Sacramento, CA 95814

Name: Pietro Parravano

		Importance 1 - 5	Core Action C
Action Categories to Restore Bay-Delta System Habitats			
Restoration of Bay-Delta System Shallow Water (Tidal) Habitat		5	C
Actions:	-Convert existing leveed lands to tidal action	3	
	-Protect existing shallow habitat from erosion	4.5	
	-Restore tidal action to existing diked wetlands	3	
	-Reconstruct levees to include shallow water habitat	5	C
	-Fill deep water to produce shallow habitat	2	
Restoration of Bay-Delta System Riverine Habitat		5	C
Actions:	-Reconstruct river banks and shallow areas	5	C
	-Restore and preserve channel islands	4	
	-Restore natural channel configurations	4	
	-Modify channel/levee construction practices to include riverine elements	4	
Restoration of Bay-Delta System Riparian Forest Habitat		5	C
Actions:	-Improve and protect degraded riparian habitats	5	C
	-Establish new areas of riparian habitat	3	
	-Reestablish historic riparian areas	5	
	-Modify levee maintenance practices	4	
	-Protect existing riparian habitat	5	

E-012028

		Importance 1 - 5	Core Action C
Restoration of Bay-Delta System Wetland Habitat		4	C
Actions:	-Restore, enhance, and create wetlands	4	
	-Expand wetland acquisition programs	4	
	-Convert agricultural lands to wetlands	3	
	-Protect existing wetland habitat	5	C
Restoration of Bay-Delta System Terrestrial Habitat		4	
Actions:	-Protect existing upland habitat Forest	3	C
	-Establish upland habitat on levees	5	C
	-Establish upland habitat on fallowed croplands	2	
	-Establish oak woodlands on suitable soils	3	
	-Encourage wildlife-friendly agricultural practices	4	
	-Preserve agricultural land uses providing habitat	4	
	-Clean up sites contaminated with toxic substances	4	C
Implementation of Integrated Habitat Management Programs		3	
Actions:	-Establish regional ecosystem restoration guidelines	3	
	-Implement integrated regional habitat management	3	
	-Develop cooperative management agreements	4	C
	-Establish mitigation banking program	1	
Establishment of Floodways and Meander Belts		5	C
Actions:	-Relocate levees to widen floodways	5	C
	-Allow river channels to meander	5	
	-Acquire Delta islands as overflow areas	4	
	-Restore floodways as habitat corridors	4	
Control of Introduced Species		4	
Actions:	-Remove or reduce nuisance species in key habitats	3	
	-Improve regulation of ballast-water releases	4	
	-Improve border inspection practices	4	
	-Inspect for invasions of nuisance species	4	
	-Modify habitat to favor native species	3	

		Importance 1 - 5	Core Action C
Delta Waterfowl Habitat Management		4	
Actions:	-Manage agricultural crops for waterfowl forage production	3	
	-Improve management of public waterfowl areas	4	
	-Implement terrestrial predator control programs	2	
	-Increase sources and availability of wildlife forage	4	

Action Categories to Restore Upstream Habitat

Restoration of Upstream Anadromous Fish Habitat		5	C
Actions:	-Manage flows and temperatures in upstream habitats	5	C
	-Restore and replenish spawning gravels	5	C
	-Restore channel configurations	4	
	-Restore shoreline habitat conditions	4	
	-Modify gravel mining practices	5	C
	-Improve floodway drainage to reduce fish stranding	2	
Improvements for Upstream Fish Passage		5	C
Actions:	-Modify passage at upstream dams and other barriers	5	C
	-Modify natural barriers to improve passage	2	C
Restoration of Upstream Riparian Habitat		5	C
Actions:	-Restrict livestock grazing in riparian corridors	5	C
	-Revegetate degraded riparian habitats	4	C
	-Protect riparian lands through purchase/easements	-1	
	-Restore flows to dewatered riparian habitats	3	
Restoration of Upstream Wetland Habitat		3	
Actions:	-Modify floodways to support wetland habitats	3	
	-Reuse agricultural drainage to create wetlands	3	
	-Reuse urban wastewater effluent to create wetlands	4	
	-Manage groundwater recharge for wetland habitat	4	

	Importance 1 - 5	Core Action C
Action Categories to Reduce Effects of Diversions		
Delta Inflow/Outflow/Export Management	5	C
Actions regarding Delta Inflows:		
-Modify upstream consumptive use	4	
-Modify upstream reservoir operations criteria	5	C
-Modify Delta inflow timing pattern	5	C
-Provide instream pulse flows for fish passage	3	
-Provide instream flows for fish attraction	4	
Actions regarding Delta Diversions and Outflows:		
-Modify volumes and timing of exports	5	C
-Modify in-Delta consumptive use	4	
-Modify central Delta channel operations	4	
-Modify export operations criteria	5	C
-Establish a Delta watermaster to manage flows	4	
-Use real-time monitoring and adaptive management	4	
Modification of Diversion Timing Patterns	5	C
Actions: -Modify diversion timing of in-Delta diversions	4	
-Modify diversion timing of export diversions	5	C
-Coordinate SWP/CVP diversion timing	4	
-Modify diversion timing through Montezuma Salinity Control Gate	2	
-Use real-time monitoring and adaptive management	4	
Increased Rates of Diversion Capacity	1	
Actions: -Obtain approvals for expanded export capacities	1	
-Enlarge export pumping capacities	1	
-Increase diversion capability at Red Bluff Diversion Dam	1	
Acquisition of Long-Term Water Supplies for Fish and Wildlife	5	C
Actions: -Acquire water to augment instream flows	5	C
-Obtain shifts in timing of instream flows	4	
-Obtain shifts in diversion timing patterns	4	

E-012031

	Importance 1 - 5	Core Action C
-Acquire water for refuge habitat use	3	
-Modify water law to establish instream rights	4	
Installation and Improvement of Fish Screens	5	C
Build new screens to prevent fish migration South of San Joaquin River		
Actions: -Improve screens at Delta export pumps	2	
-Improve other existing fish screen systems	5	
-Install screens on other in-Delta diversions	4	
-Install screens on upstream diversions	5	
-Consolidate and screen existing small diversions	5	
-Enforce screening requirements	5	
Improvement of Bay-Delta System Fish Migration	5	C
Actions: -Install barriers to block fish movement into Old River	1	
-Install barriers to keep fish in Sacramento River	1	
-Install barriers to divert fish from Sacramento River to western distributaries	1	
-Operate fish barrier on San Joaquin River at Merced River confluence in fall	1	
-Provide instream pulse flows for fish passage	1	
-Provide instream flows for fish attraction	5	C
Improvement of Fish Salvage Operations	5	C
Actions: -Improve design of salvage facilities	5	C
-Improve operation of salvage facilities	5	
-Improve fish hauling and release procedures	5	
Removal and Control of Aquatic Predators	1	
Actions: -Harvest predators at Delta export pumps	1	
-Harvest predators in upstream habitats	1	

Action Categories to Manage the Enhancement of Anadromous Fish Populations

Fish Hatchery Operations	5	C
Actions: -Expand hatchery capacities	5	C
-Construct new hatcheries on the San Joaquin River	5	C
-Improve hatchery operations	5	C

		Importance 1 - 5	Core Action C
	-Reduce hatchery effects on wild fish populations	4	
	-Implement tagging of hatchery-bred fish	4	
	-Establish new captive breeding programs	4	
Fish Harvest Management		5	C
Actions:	-Improve regulation of commercial take	1	
	Improve regulation of recreational take	1	
	-Improve enforcement of harvest regulations	4	

Action Categories for Reducing Reliance on Delta Exports

Desalination		4	C
Actions:	-Expand desalination of Southern California supplies	4	
	Expand desalination of San Joaquin Valley supplies	5	C
	-Improve desalination technologies and cost	5	
	-Educate users about desalination feasibility	4	
Water Conservation		5	C
Actions:	-Increase use of district-wide conservation practices	4	
	-Increase use of on-farm conservation practices	5	C
	Increase use of municipal conservation practices	5	C
	-Increase use of industrial conservation practices	5	C
	-Implement financial incentive policies	4	
	-Implement conservation-oriented rate structures	4	
	-Educate users about conservation technologies	5	C
Water Reclamation		5	C
Actions:	-Recharge groundwater with reclaimed water	5	C
	-Use reclaimed water for agricultural irrigation	5	C
	-Reclaim saline agricultural drainage water	4	
	-Recycle and treat water for potable reuse	2	
	-Use reclaimed water for nonpotable urban uses	5	C
	-Use reclaimed water for landscape irrigation	4	
	-Use reclaimed water for power plant cooling	4	
	-Use reclaimed water for industrial processes	4	
	-Use reclaimed water to repel salinity intrusion	5	C
	-Improve reclamation technologies and cost	5	C
	-Educate public about water reclamation	4	

E-012033

		Importance 1 - 5	Core Action C
Land Retirement and Fallowing		4	C
Actions:	-Encourage land fallowing during drought periods	5	C
	-Develop incentive programs for land retirement	4	
	-Purchase lands or easements	3	
	-Retire lands with drainage problems	5	C
Water Pricing		5	C
Actions:	-Establish incentives for pricing to reduce demand	4	C
	-Educate users about pricing feasibility	5	C
	-Remove legal obstacles to pricing incentive programs	5	C

Action Categories to Enhance Water Supplies

Watershed Management		4	C
Actions:	-Manage vegetation cover to increase yield	2	
	-Manage riparian zones to protect water quality	4	C
	-Manage land uses to reduce sedimentation	5	C
	-Modify weather to increase precipitation	1	
New or Expanded Onstream Storage		2	
Actions:	-Construct new storage facilities south of the Delta	3	
	-Construct new storage facilities north of the Delta	2	
	-Enlarge existing onstream storage reservoirs	1	
	-Modify operations of existing onstream reservoirs	4	C
New or Expanded Offstream Storage		3	
Actions:	-Construct new storage facilities south of the Delta	3	
	-Construct new storage facilities north of the Delta	3	
	-Construct new storage facilities in Delta	4	C
	-Enlarge existing offstream storage reservoirs	2	
	-Modify operations of existing offstream reservoirs	4	
Groundwater Banking and Conjunctive Use		4	C
Actions:	-Establish incentives for conjunctive use	4	
	-Modify Water Code to encourage conjunctive use	4	
	-Establish conjunctive use programs	4	

	Importance 1-5	Core Action C
-Store groundwater south of the Delta	4	C
-Store groundwater north of the Delta	3	
-Implement techniques to increase groundwater recharge	4	C
Improvement of Through-Delta Conveyance	2	
Actions: -Increase capacities of existing east-side channels	1	
-Increase flows from the Sacramento River to the central Delta	1	
-Modify Delta levees to increase flow cross sections	3	
-Construct pump/siphon systems between Delta channels	3	
-Expand existing intakes at the Delta export facilities	1	
-Construct expanded export intake/forebay pumping system	1	
Construction and Improvement of Conveyance Facilities	3	
Actions: -Construct east-side isolated transfer system	3	
-Construct west-side isolated transfer system	1	
-Construct small isolated transfer facility	3	
-Convert Delta islands to storage/conveyance system	4	
-Construct conveyance to offstream storage	2	
-Construct conveyance to groundwater storage	3	
Changes in Locations of Diversions	5	C
Actions: -Relocate Delta export pumps from key habitats	5	C
-Relocate other in-Delta diversions for more reliable supplies	4	C
-Consolidate in-Delta agricultural diversions	4	
-Relocate upstream diversions from key habitats	3	
-Improve diversion designs when relocating	5	C

Action Categories to Increase Supply Predictability

Water Transfers	3	
Actions: -Modify Water Code to ease transfers	3	
-Improve procedures for transfer permitting	2	
-Coordinate diversion and conveyance of transfers	2	

		Importance 1 - 5	Core Action C
Long-Term Planning for Drought Contingencies		3	
Actions:	-Increase water storage capacities at user locations	2	
	-Establish incentives for long-term planning	3	
	-Conduct Integrated Resources Planning	3	
	-Establish incentives for long-term conservation	4	C
	-Develop alternate supplies for drought situations	3	
Water Resources Data and Information Management		5	C
Actions:	-Establish a comprehensive water data system	5	C
	-Implement real-time data management system	5	C
	-Integrate data for adaptive management decisions	5	C
	-Establish accessible data management system	5	C
Establishment of Institution for Integrated Long-Term Water Management		4	C
Actions:	-Establish long-term guarantees for management	4	
	-Establish institution to implement guarantees	4	
	-Coordinate multiagency roles in management	3	
	-Coordinate groundwater and surface water management	4	
	-Establish incentives for cooperation/coordination	5	C
	-Establish a public awareness and education program	5	C
Establishment of Export Capacity Market		3	
Actions:	-Establish procedures for allocation of export capacity	3	
	-Establish institution to allocate export capacity	3	
	-Coordinate water transfers and export capacity	2	
	-Market export capacity for environmental benefits	4	
Integration of Land Use and Water Supply Planning		4	
Actions:	-Coordinate land uses with water supplies	4	
	-Encourage local determination of supplies available	4	
	-Encourage local assessment of water supply reliability	3	

E-012036

	Importance 1 - 5	Core Action C
Action Categories for Managing Water Quality		
Installation and Operation of Flow Barriers	2	
Actions: -Install flow barriers to manage south Delta quality	2	
-Install weirs to control salinity intrusion	2	
Management of Agricultural Drainage	5	C
Actions: -Implement source control regulations for pollutants	4	
-Implement pollutant-load limits in San Joaquin River	5	C
-Reduce or control volume of agricultural discharges	4	
-Modify cropping and irrigation practices	4	
-Export agricultural drainage to other watersheds	0	
-Retire lands with drainage disposal problems	5	C
-Improve pest-control practices	4	
-Avoid use of high-salinity irrigation water	3	
-Manage irrigation tailwater to reduce pesticides	3	
-Manage drainage timing to reduce instream impacts	3	
-Treat drainage to remove salt or other pollutants	4	
-Dilute pollutants in Delta inflows from SJR using stored water	0	
Management of Urban/Industrial Drainage and Wastewater Discharge	4	C
Actions: -Retain and manage stormwater runoff	4	
-Implement urban awareness/education programs	4	
-Treat discharges to remove problem constituents	4	
-Construct wetlands to treat wastewater effluent	5	C
-Increase key nutrient inputs to estuary	5	C
-Enforce wastewater discharge requirements	4	
-Prevent toxic discharges from industrial plants	5	C
Dredged Material Management	4	C
Actions: -Limit dredging to slack tides	3	
-Limit dredging to avoid fish migration periods	4	
-Use techniques to localize sediment movement	4	
-Dispose dredged materials at nonaquatic or other suitable sites	4	
-Remove contaminated sediments in critical habitat sites	5	
-Ensure material used for levee maintenance is noncontaminated	4	

		Importance 1 - 5	Core Action C
Management of Abandoned-Mine Drainage		5	C
Actions:	-Manage discharges from abandoned mines	5	C
	-Remediate abandoned mining sites discharging pollutants	5	C
Action Categories for Improving System Reliability			
Levee Maintenance and Stabilization		5	C
Actions:	-Maintain and stabilize existing levees	3	
	-Modify agricultural practices to reduce subsidence	5	C
	-Use infilling to correct past subsidence	4	
	-Implement uniform maintenance standards	3	
	-Provide funding for maintenance and stabilization	5	C
Improvement of Flood Protection Levels and Seismic Stabilities		5	C
Actions:	-Reconstruct levees to higher design standards	5	
	-Reconstruct levees to higher seismic standards	5	
	-Relocate levees to more stable sites	5	C
	-Widen floodways to increase flood conveyance	5	C
	-Establish and manage flood overflow areas	5	C
Rerouting and Protection of Infrastructure from Flooding and Seismic Risk		5	C
Actions:	-Maintain/reconstruct levees around infrastructure	5	C
	-Reconstruct infrastructure to increase reliability	4	
	-Relocate/reroute infrastructure	2	
Establishment of Long-Term Funding Mechanisms		4	C
Actions:	-Establish a disaster contingency funding program	4	
	-Establish a Bay-Delta financing authority	4	C
	-Provide low-cost debt financing for local agencies	4	
	-Establish a bond financing mechanism	3	
	-Establish a statewide water utility surcharge	4	C

COMMENTS: The fish migration section is inadequate. The concept should establish all habitat North of the San Joaquin River as fish friendly + construct a system of screens to keep fish from migrating South of San Joaquin River toward the pumps. The San Joaquin River should always have positive by-pass flows past the screening system.